Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-28 (cancelled)

Claim 29 (previously presented) The method of claim 32, wherein the heat exchanger further includes a hollow outer tube disposed around the hollow central tube and defining a chamber between the outer surface of the hollow central tube and the inner surface of the hollow outer-tube, and the method further comprises:

flowing a third fluid medium through the chamber between an inlet port and an outlet port of the hollow outer tube.

Claim 30 (previously presented) The method of claim 29, wherein the third fluid medium comprises a fluid medium selected from the group consisting of water, one or more hydrocarbons, a substantially pure gas, a substantially pure liquid, and combinations thereof.

Claim 31 (previously presented) The method of claim 30, wherein the fiber is passed through the internal passage of a plurality of heat exchangers, and the temperature of the third fluid medium flowing through the chamber of at least one heat exchanger is different than the temperature of the fluid medium flowing through the chamber of at least one other heat exchanger.

Claim 32 (currently amended) A method of cooling a fiber in a coolant system, the coolant system including a heat exchanger, a gas analyzer, and a controller, the heat exchanger having:

a hollow central tube,

a fiber inlet,

a fiber outlet, and

an internal passage disposed between the fiber inlet and fiber outlet and first and second adjustable seals, wherein

i) the first and second adjustable seals partition the internal passage into a first chamber, a second chamber and a primary cooling chamber,

ii) the controller is in communication with the first and second adjustable seals and the gas analyzer,

iii) the first chamber has an inlet port,

iv) the second chamber has an inlet port, ~~and~~

v) each of the adjustable seals is an iris diaphragm, the iris diaphragm including a series of sliding plates that combine to form a generally circular orifice and which are selectively manipulable to increase ~~and/or~~ or decrease a diameter of the orifice, and

vi) the gas analyzer is in fluid communication with a withdrawal port disposed on at least one of the first, second and primary cooling chambers,

said method comprising the steps of:

passing a fiber through the internal passage between the fiber inlet and the fiber outlet;

flowing a first fluid medium into the first chamber via the inlet port of the first chamber;

flowing a second fluid medium into the second chamber via the inlet port of the second chamber, wherein the flow of first and second fluid mediums achieves a lowering of the fiber temperature and the first and second fluid mediums are of the same or different gas composition; ~~and~~

~~manipulating at least one of the adjustable seals, via the controller, to selectively adjust a dimension of the seal orifice, wherein the at least one of the adjustable seals is independently manipulated, via the controller~~

allowing a fluid sample from the withdrawal port to flow to the gas analyzer;

measuring a concentration of a gas in the fluid sample via the gas analyzer

selecting a threshold value for a concentration of the measured gas; and

based upon the measured concentration and the threshold value, manipulating at least one of the iris diaphragms, via the controller, to selectively decrease the diameter of the iris diaphragm orifice when the measured concentration of one of the gases in the fluid sample exceeds the threshold value.

Claim 33 (previously presented) The method of claim 32, wherein a composition of the first fluid medium is the same as the second fluid medium.

Claim 34 (previously presented) The method of claim 32, wherein a composition of the first fluid medium is different than a composition of the second fluid medium.

Claim 35 (previously presented) The method of claim 32, wherein:

the first fluid medium comprises a fluid medium selected from the group consisting of helium, neon, argon, krypton, xenon, hydrogen, nitrogen, carbon dioxide, and mixtures thereof; and

the second fluid medium comprises a fluid medium selected from the group consisting of helium, neon, argon, krypton, xenon, hydrogen, nitrogen, carbon dioxide, and mixtures thereof.

Claim 36 (previously presented) The method of claim 35, wherein the second fluid medium further comprises another fluid medium selected from the group consisting of a silane, a phosphine, fluorine, chlorine, gaseous organometallic compounds, and mixtures thereof.

Claim 37 (previously presented) The method of claim 32, wherein the second fluid medium comprises a fluid medium selected from the group consisting of helium, hydrogen and a mixture of hydrogen and helium.

Claim 38 (previously presented) The method of claim 32, wherein the first fluid medium comprises a fluid medium selected from the group consisting of argon, carbon dioxide, and a mixture thereof.

Claim 39 (previously presented) The method of claim 32, wherein the fiber is passed through a plurality of the heat exchanger of claim 32, and the second fluid medium that is flowed into the second chamber of at least one of the plurality of heat exchangers is different than the second fluid medium that flows into the second chamber of another one of the plurality of heat exchangers.

Claims 40-42 (canceled)

Claim 43 (currently amended) The method of claim ~~42~~ 32, wherein the one or more gases whose concentration is measured by the gas analyzer ~~measures the concentration of at least one~~ is selected from the group consisting of oxygen, nitrogen and carbon dioxide ~~in the extracted fluid sample~~.

Claim 44 (canceled)

Claims 45-46 (canceled)

Claim 47 (previously presented) The method of claim 32, wherein the fiber is an optical fiber.

Claims 48-49 (canceled)